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February 11, 1965

Mr. John E. Dilley
Contracting Officer
Mail Stop 500-309
NASA, Lewis Research Center
21000 Brookpark Road
Cleveland, Ohio, 44135

Subject: Informal Monthly Report
Contract NAS3-4165

Dear Mr. Dilley:

Enclosed is the monthly report for January 1965 covering Task IV of Article I. The report is identified as GACD-6123 (1-65). By copies of this letter we are making other distribution as required by the contract.

Very truly yours,

Paul C. McEwen, Jr.
Contract Administration

PM:mp
Enclosure: GACD-6123 (1-65)
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GENERAL ATOMIC DIVISION

GENERAL DYNAMICS CORPORATION

John Jay Hopkins Laboratory for Pure and Applied Science
P. O. Box 608, San Diego 12, California

GACD-6123 (1-65)

Copy No. 3

STUDIES OF THERMIONIC MATERIALS FOR SPACE POWER APPLICATIONS (U)

Informal Monthly Report for the Period
January 1, 1965 Through January 31, 1965

Project 373
Contract No. NAS 3-4165
National Aeronautics and Space Administration

February 4, 1965

This report summarizes the work performed during the month of January, 1965, on contract NAS 3-4165, Part IV, Irradiation Experiments at Plum Brook.

Several letters have been received from PBRF during the month pertaining to both the Operations Manual and the Design Manual. An evaluation of a reactor transient was conducted to the satisfaction of Plum Brook, but in turn they hypothesized a more severe transient to examine. Formal direction by the technical manager has not been received authorizing any further work recommended by PBRF other than the contents of their letter of November 3, 1964.

The test fixtures required for hardware testing have been designed and fabrication is proceeding. Specifically, the fixtures will be used for testing the CPM cylinder, hydrostatically testing the penetration assembly, testing the V-tube-penetration assembly procedure, and an integral test of the complete facility. Detailed testing procedures have been written and will be included in the revised Operations Manual.

Fabrication of the hardware is proceeding with a tentative completion date of February 12, about one week behind schedule. Several pieces of material have had longer delivery time than anticipated, particularly those materials associated with the penetration (see attached schedule).

Capsule drawings have been revised to incorporate the changes required for accommodation with the reactor. Capsule parts are being fabricated, but assembly has not begun due to lengthy delays in the delivery of the fuel thermocouples. However, a portion of the order has been received and will be processed. Completion of the capsule is behind schedule, but this does not affect the over-all schedule.

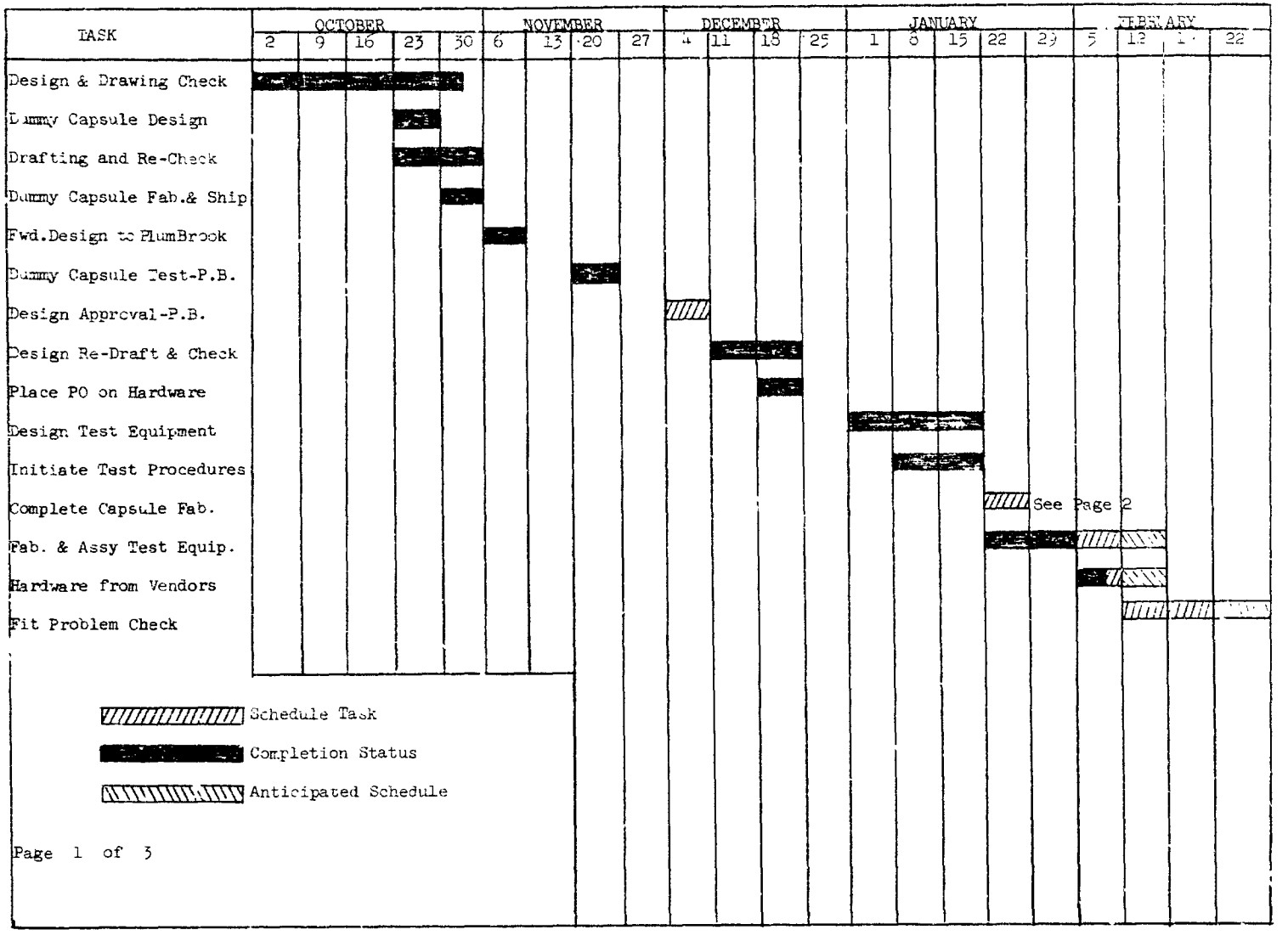
No work has been done this month on the instrumentation since resolution between General Atomic and PBRF is required followed by formal direction from the contract technical manager. The second L and N (TR-3)

requested by PBRF was ordered and delivery is scheduled for April. This instrument can be installed at Plum Brook if it does not arrive before the instrumentation is shipped.

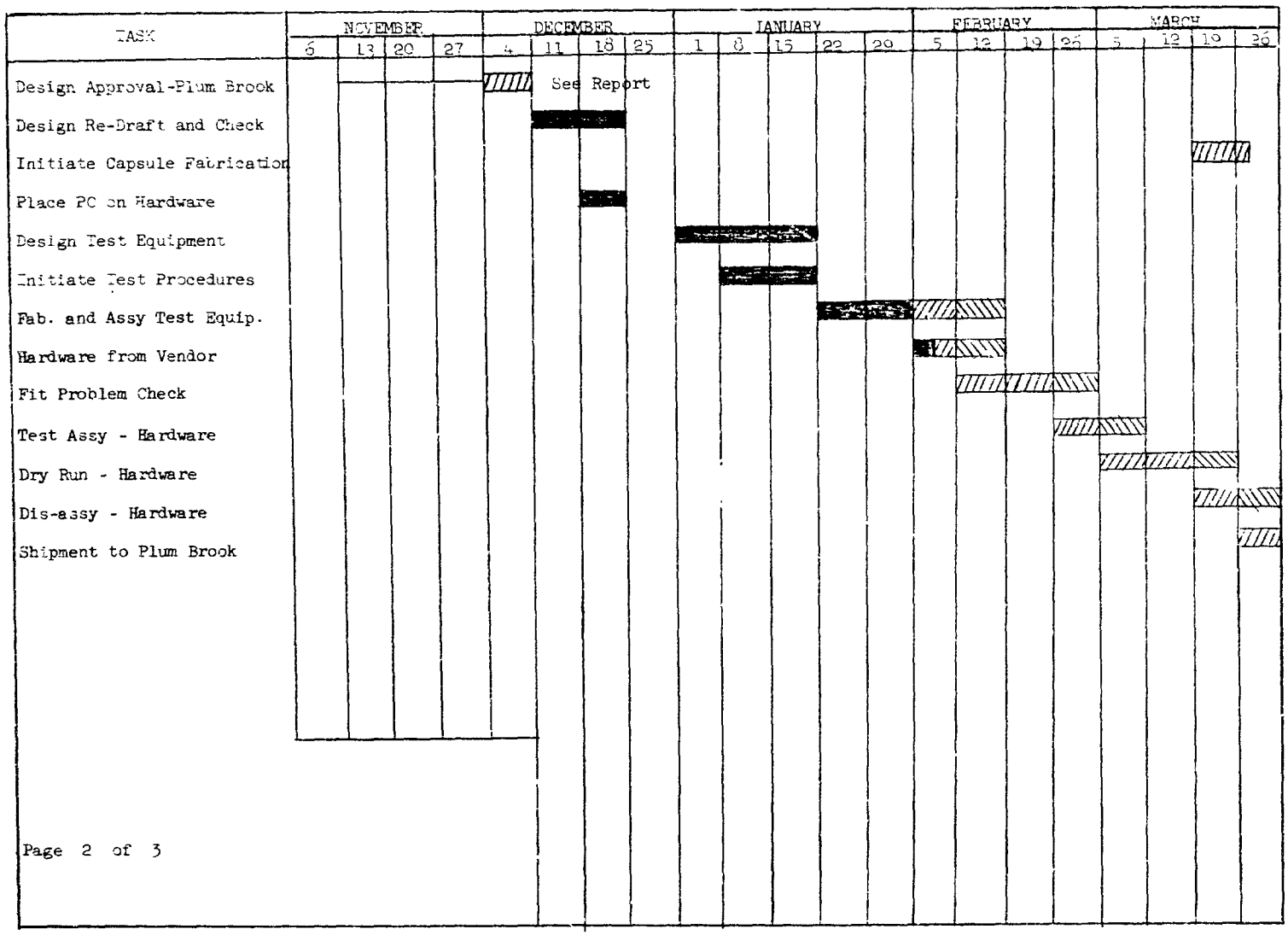
The use of nitrogen in the shim gas annulus has been eliminated since its effect on fuel temperature is small with the adverse effect of drastically increasing the secondary containment temperature. No changes will be made in the hardware since this change can best be handled through the operational procedures.

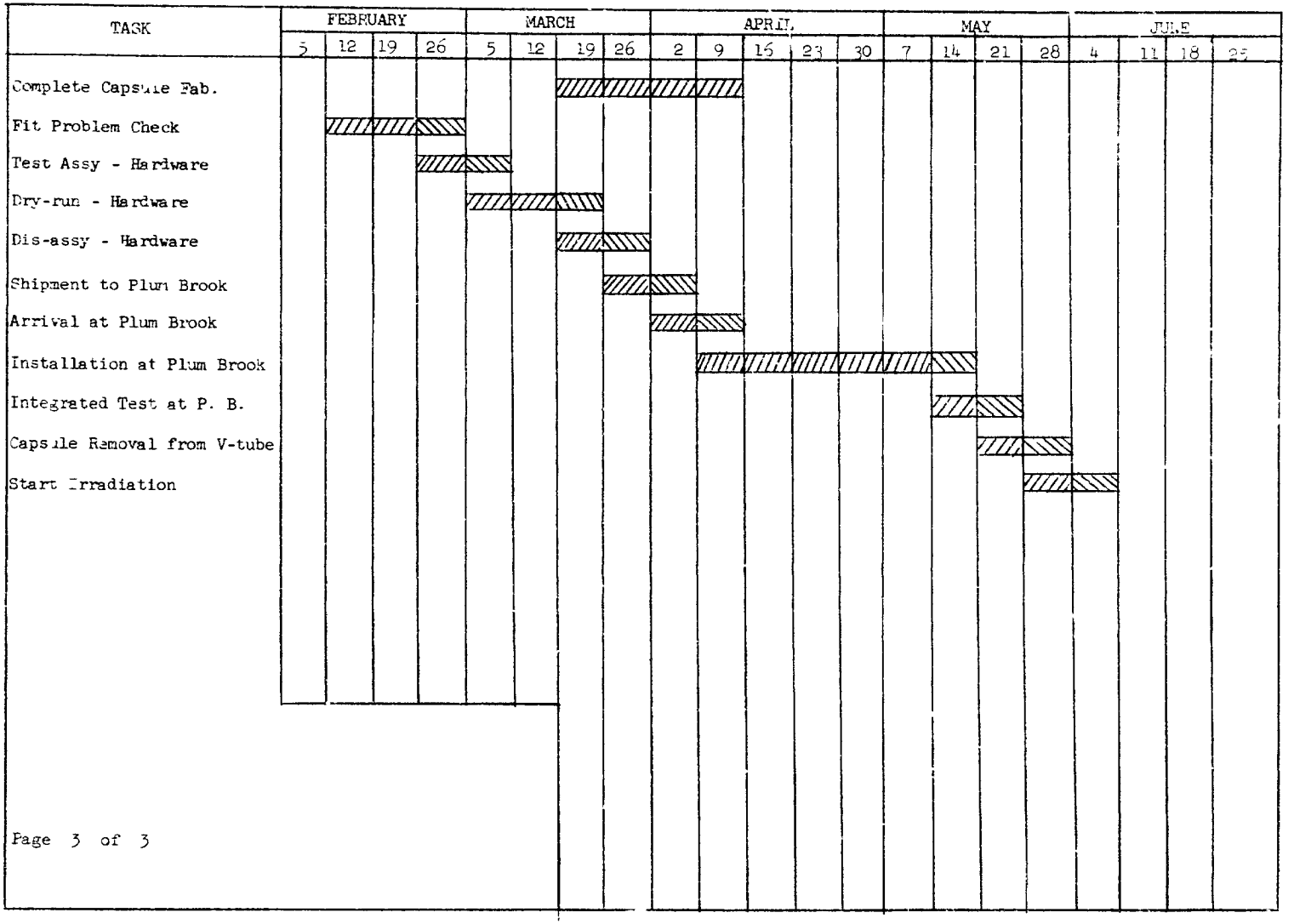
A complete drawing list and materials substitutions list has been sent to PBRF.

CURRENT STATUS OF PLUM BROOK IRRADIATION SCHEDULE



CURRENT STATUS OF PLUM BROOK IRRADIATION SCHEDULE




TASK
FEBRUARY
MARCH
APRIL
MAY
JUNE
5 12 19 26 5 12 19 26 2 9 16 23 30 7 14 21 28 4 11 18 25
Complete Capsule Fab.
Fit Problem Check
Test Assy - Hardware
Dry-run - Hardware
Dis-assy - Hardware
Shipment to Plum Brook
Arrival at Plum Brook
Installation at Plum Brook
Integrated Test at P. B.
Capsule Removal from V-tube
Start Irradiation